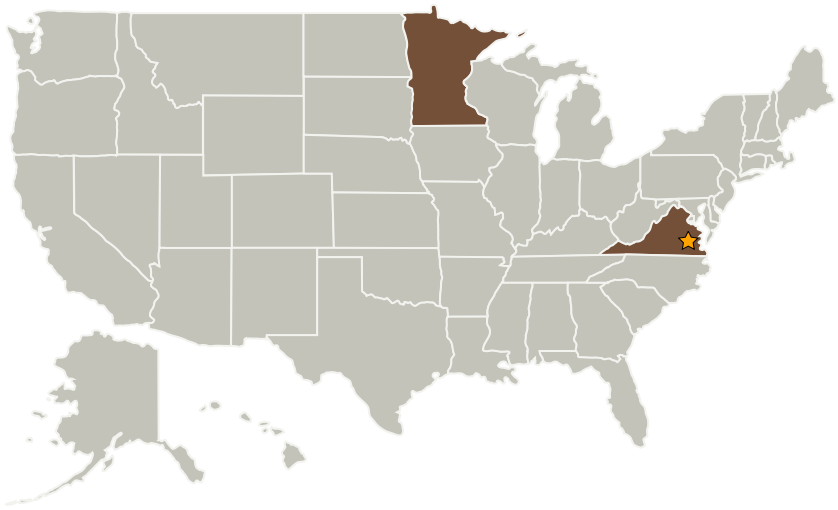
High Performance Dual Band Photodetector Arrays for MWIR/LWIR Imaging, Phase II

Completed Technology Project (2007 - 2009)

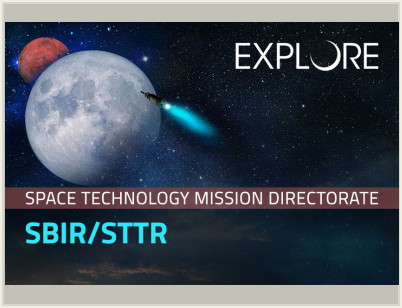
Project Introduction

This proposed Phase II program seeks to create dual-band pixel-collocated MWIR/LWIR photodetector arrays based on III-V semiconductor materials in a Type-II superlattice structure. The Type-II superlattice offers a customizable cutoff wavelength while maintaining a lattice-matched condition to the host substrate. This superlattice also has lower Auger-recombination, which reduces dark current noise, than HgCdTe solutions, and is sensitive to normal incidence radiation, in contrast to QWIP approaches. The Phase I efforts successfully designed, fabricated and characterized a Type-II dual band IR photodetector. The superlattice material growth will be further optimized in the Phase II, along with modifying the fabrication steps required to realize dual-band photodetector arrays.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
SVT Associates	Supporting Organization	Industry	Eden Prairie, Minnesota



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
Minnesota	Virginia

Project Transitions

November 2007: Project Start

November 2009: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes